工學院 機械學群 專題演講公告

演講者：**Yasuyuki Toda, Professor**

題　目：

1. Added Resistance and Self-Propulsion in Waves for KRISO Container Ship Model – EFD and CFD

2. Current Development of an Underwater Vehicle with Undulating Side Fins – Squid robot

時　間：**2018年11月2日 AM 10:30 - 12:00**

地　點：**系統系 56111教室**

演講摘要

1.　　Ship motion responses and added resistance in waves have been predicted by a wide variety of computational tools including potential flow based methods and CFD (viscous simulation). However, viscous ship wake and thrust oscillation in waves is still of concern to resistance and propulsion. Especially, to validate the computational flow field is still challenging. Compared to our previous studies for a tanker, in the present work KRISO container ship (KCS) model was appended with a rudder in higher Froude number 0.26 and with smaller block coefficient 0.65. The objective is to validate CFD results by EFD data for ship vertical motions, added resistance and wake flow field. Furthermore, bilge vortex movement and boundary layer development on propeller plane, nominal and effective wake factor in waves will be studied.

2.　　The propulsion system of fish-like body has been investigated for several years. In our laboratory, underwater vehicle with undulating side fins has been studied. The side fins can be used to make the straight line motion and the rotating motion by changing the speed and the direction of traveling wave motion on the fin. The advantage is that very large negative thrust in the early stage of the stopping motion can generated compared with the traditional screw propeller. Based on these results, a study of designing an aquatic motor vehicle with two undulating side fins has been started since 2014.

講者介紹

Yasuyuki Toda is the professor at the Department of Naval Architecture and Ocean Engineering, Osaka University, Japan. He is the leader of the laboratory for hull form design. His research includes ship hydrodynamics, computational fluid dynamics, under water vehicle, ocean model, drag reduction and S-PIV (Stereo-Particle Image Velocimetry) measurement.

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